ASC-TR-96-1001

COMMAND VEHICLE MODULE PRODUCT EVALUATION REPORT

Aeronautical Systems Center
Weapons, Air Base and Range Product Support Office
ASC/VXO
314 W. Choctawhatchee Ave., Suite 104
Eglin AFB, FL 32542-5717

1 November 1995

FINAL REPORT FOR PERIOD 7 NOV 1994 - 24 FEB 1995

AERONAUTICAL SYSTEMS CENTER
Air Force Material Command ■ United States Air Force ■ Eglin Air Force Base

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FOR THE COMMANDER

WADE H. GRIMM
Program Manager

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13. ABSTRACT *(Maximum 200 words)*

Final report of the commercial technology exploitation evaluation of a drop-in vehicle Modular Command Unit produced by Odyssey Automotive Specialty of Wharton, New Jersey. The evaluation was conducted by the 439 Support Group, Fire Protection Division, Westover AFB, Massachusetts between 7 Nov 1994 and 24 Feb 1995. This evaluation was part of a continuing program to explore commercial off the shelf technology for application to Air Force firefighting requirements. The unit assisted the vehicle operator keeping reference material organized and available. Nine recommendations were made to improve certain aspects of the unit evaluated. The concept was validated although each Fire Protection Division should have the freedom to purchase a unit that best satisfies the needs of their specific mission.

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DEPARTMENT OF THE AIR FORCE

AERONAUTICAL SYSTEMS CENTER (AFMC)

EGLIN AIR FORCE BASE, FLORIDA

1 Nov 95

MEMORANDUM FOR HQ AFCESA/CEXF

FROM: ASC/VXO
314 Choctawhatchee Ave., Suite 104
Eglin AFB, FL 32542-5717

SUBJECT: Command Vehicle Module Product Evaluation Report
(Ref: Test Plan, Nov 1994)

1. PURPOSE AND BACKGROUND. The purpose of this evaluation was to assess the feasibility of using a drop in work station/desk in the fire chief's command vehicle. The system evaluated is a command vehicle Modular Command Unit (MCU) manufactured by Odyssey Automotive Specialty of Wharton, New Jersey. The evaluation was managed by the 439 SPTG/CEF at Westover AFB, Massachusetts between 7 Nov 94 and 24 Feb 95.

2. SYSTEM DESCRIPTION. The MCU is a series of cabinets that interlock and are designed to mount in the rear cargo area of a Suburban, Blazer, Bronco, Explorer or Cherokee. They are constructed of cabinet grade plywood with Formica-like laminate on all exterior surfaces, marine carpeting on interior surfaces and a PVC bumper along edges. The three basic modules provide a slide out command board with a dry erase surface and multiple book case and equipment cabinets, some with Plexiglas swing open doors. Once assembled, the unit slides in the cargo area and bolts to the floor. A typical installation is illustrated in attachment one. The unit was evaluated in a 1993 Chevrolet Suburban, SN#93B-2311.

3. METHOD. A standard Modular Command Unit consisting of a MCU 100-1 command board module, a MCU 200-1 upper cabinet module, and a MCU 300-1 side cabinet module was ordered, installed, and evaluated in a 1993 Chevrolet Suburban. Installation took approximately 1 hour 30 minutes. The unit was secured with straps, not bolted to the floor because bolting to the floor would require removal/re-installation of the fuel tank and prevent access to the spare tire. The evaluation was accomplished during the winter in cold, windy and rainy weather.

4. OBJECTIVES AND RESULTS. The following objectives were used to assess effectiveness, compatibility, durability, reliability, maintainability, and availability of the Modular Command Unit when used in an Air Force fire command vehicle.

a. Objective E-1. Assess the effectiveness of the MCU to provide storage and access to reference material and equipment during training and emergency response scenarios. The measure of effectiveness is time saved locating information and equipment on-scene in the fire command vehicle. The criteria is not established. **Results**: The organized storage in the MCU provided much improved access to materials over previous storage methods (milk crates on the floor), especially during an emergency response situation. The size of the map storage drawer limits the materials that can be stored/displayed in this slide-out board. D size maps (22" by 34") are too wide for the compartment. There is not a storage/display location for multiple maps. Reference books stored in the bin type containers would slide to the front of the storage compartments when vehicle brakes are applied, making access more cumbersome since they migrate to the "back" of their storage locations. With the rear doors of the vehicle open, wind would blow loose papers and items from modules without doors. When parked nose down on an incline, the drawers, especially the map drawer, would slide closed.

b. Objective S-1. Assess the compatibility of the MCU with the operational environment. What problems are encountered using the MCU for storage/access? Does it interfere with any other equipment normally used in an emergency response? The measure of effectiveness is a subjective evaluation of interoperability with other emergency response equipment and personnel. The criteria is not established. **Results**: The location of the unit traps the spare tire in its fenderwell location so that a permanent installation would either render the spare tire inaccessible or require the tire to be relocated to a new location. If the unit were bolted in, it would require removal of the gas tank to access the recommended bolt down locations. When used in inclement weather with the rear doors open, there is no protection for the MCU and its contents from rain. Some type of tent/cover would improve functionality of the system. The normal storage location for personal protective equipment is filled by the MCU requiring this equipment to be relocated to the third seat where it slides and shifts during travel. The front of the unit could be modified to provide storage for SCBA, fire extinguisher, and bunker gear, especially with the third seat removed. The Incident Command Sheet is too large to be stored in, on, or near the MCU. The complete unit is very tall and restricts the drivers rearward visibility; use of external mirrors becomes much more critical, in most cases requiring a spotter for backing.

c. Objective S-2. Assess the durability of the MCU. Does the unit hold up under operational use? Is construction rugged enough for the military firefighting environment? The measure of effectiveness is serviceability of the unit. The criteria is not established. **Results**: The MCU is a strong and rigid unit. No problems with the construction of the unit were noted during the evaluation period.

d. Objective S-3. Assess the reliability, maintainability, and availability (RM&A) of the MCU. The measure of effectiveness is serviceability of the unit. The criteria is not established. **Results**: The only maintenance performed on the unit after it was installed was to re-seat some molding that had bulged out.

5. CONCLUSIONS. The Modular Command Unit (MCU) by Odyssey Automotive Specialty is a very functional improvement to the command vehicle. Since each department has unique variations in mission, the design should be adaptable to allow tailoring the unit to specific requirements. The unit evaluated is sturdy and assists the operator by keeping reference material organized and available. Some type of inclement weather covering is necessary to allow optimum use of the vehicle in rainy and windy conditions. One option suggested by the evaluators was to remove the third seat in the Suburban, mount the second seat backward and load the MCU backward allowing all operations to be conducted from within the vehicle during all variety of weather. This option may not be compatible with other vehicle types.

6. RECOMMENDATIONS. The concept of a commercial drop-in command vehicle module is valid. Several vendors provide custom designs and most will adapt a unit to unique requirements. A generic command vehicle module should be added to the table of allowance which would allow individual units to select from the commercially available units, one that best suits their particular application. Some recommendations about the specific unit tested include:

a. Secure the unit with a strap and seat belt type latch to allow removal to access the spare tire.

b. The deep pile of the rug made many screws difficult to start, longer screws would ease installation.

c. Some nuts and bolts were missing from the kit (replaced by vendor) but spare bolts in the kit might minimize installation delays.

d. A slide out book shelf for reference material would enhance the availability of materials that shift during transport.

e. A storage device, similar to a desk drawer pencil tray, on the MCU 100-1 unit would facilitate keeping writing supplies together.

f. Drawers, especially the map drawer should have some type of lock or stop to prevent them closing when the vehicle is parked nose down.

g. The map drawer needs to be larger to accommodate standard maps (22" x 34"). The drawer width should be enlarged to bridge the entire width of the assembled unit (i.e. the additional width of the MCU 300-1 module).

h. A slide out or removable board for the Incident Command Sheet would enhance operation. If stored on top of the MCU, the board must be secured to prevent shifting while in transit.

i. The overall height of the unit should be reduced to allow limited visibility for the driver over the installed unit. This will allow safer backing capability.

WADE H. GRIMM
Program Manager

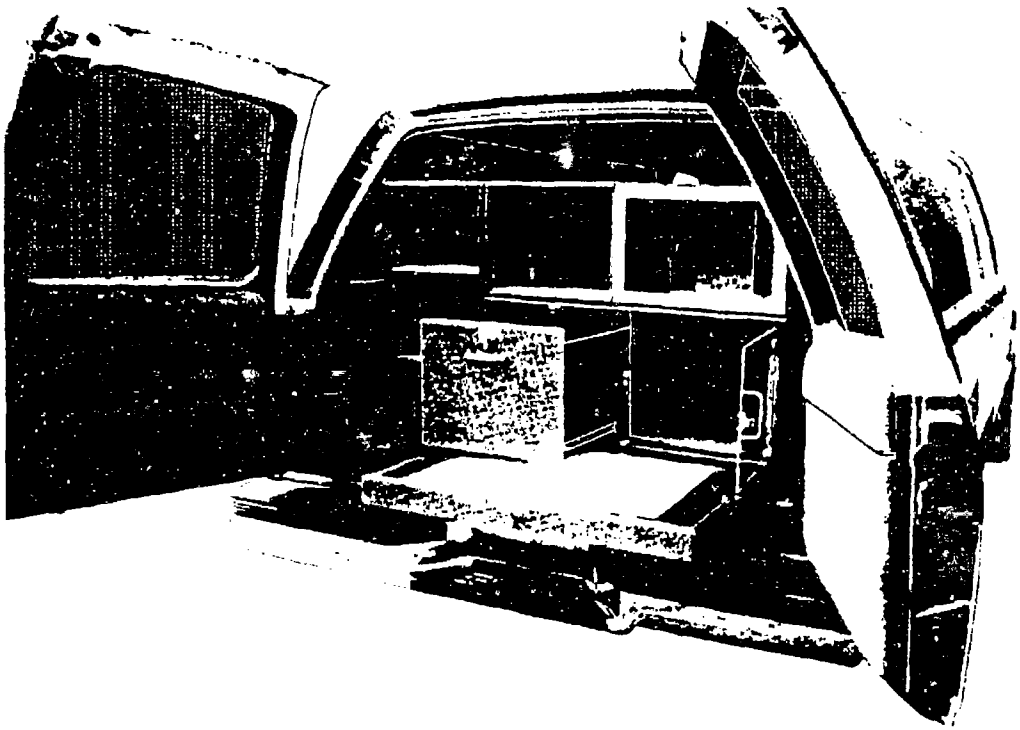
Attachments:
1. Equipment illustrations.
2. Distribution.

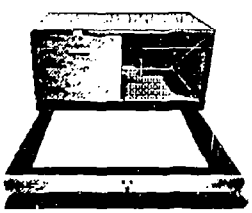
HQ AFCESA/CEXF 22 Jan 96

Concur/~~non-concur~~ with the recommendations in this report.

JAMES W. HOTELL
Chief, Fire Protection Division

EQUIPMENT ILLUSTRATIONS

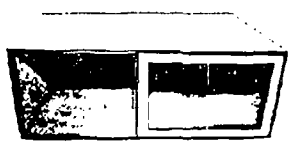




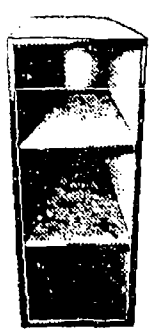
MCU 100-1

This section gives you a slide-out board on which you can place resource management sheets, building plans, maps or other large documents to help you run the operation. The top lifts and then drops back down, holding the sheets in place. You can use a grease pencil to mark on the map. When the incident is over, the markings erase easily. *Shown with optional file drawer and **swing-out** Plexi doors.*

MCU 200-1



Every incident commander carries preplans, charts, notebooks, reference manuals and other documents. MCU 200-1 lets you organize these items while keeping them readily accessible. *Shown with one divider and optional **sliding** Plexi doors.*



MCU 300-1

This module completes the set and gives you the versatility of carrying extra equipment. These vertical cabinets have two adjustable shelves. Normal configuration is three cabinets, although they can be setup as two cabinets, including one containing an SCBA in its carrying case. *Shown with two adjustable shelves and one fire extinguisher wedge.*

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